UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,689	09/22/2000	Theodore Rappaport		9715

30743 7590 09/29/2004

WHITHAM, CURTIS & CHRISTOFFERSON, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA 20190

EXAMINER	
ZHOU, TING	

ART UNIT	PAPER NUMBER
2173	9

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/667,689	RAPPAPORT ET AL.	
	Examiner	Art Unit	
	Ting Zhou	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-69 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-69 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 September 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5, 7 and 8.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the following reference characters are not labeled in an appropriate descriptive manner: components referred to in Figures 2-3 and 6 should be descriptively labeled in order to clearly convey what each object referenced in the figures represent.

2. Applicant is required to submit a proposed drawing correction of the above noted deficiencies in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The abstract is objected to as being too long in length. It is advised that the applicant amend the abstract to fall within the 50 to 150 word limit.

Claim Objections

4. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n). Dependent claims 39-41 depend upon dependent claim 32, but are separate by claims 34-38, which do not depend upon dependent claim 32.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 68-69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The terms "not desirable" and "desirable" in claims 68-69 are relative terms which render the claims indefinite. The terms "not desirable" and "desirable" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The meaning of the terms "not desirable" and "desirable" is vague and varies depending upon one of ordinary skill in the art's interpretation, and since the claims do not recite what placement would be desirable and what placement would not be desirable, one of ordinary skill in the art would

not reasonably be able to determine what placement of the components would be considered desirable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-69 are rejected under 35 U.S.C. 102(b) as being anticipated by "SMT Plus 1.0 User's Manual", authored by Skidmore et al.

Referring to claims 1, 12, 19 and 31, Skidmore et al. teach a site specific method and apparatus comprising generating a computerized model of a space, the space having a plurality of different objects therein each of which have attributes which impact performance of a communications network (displaying the floor plan of a building having a plurality of base stations and interference sources, which change the performance and coverage of the communications network) (page 2, first and second paragraph and further shown in Figure 4.2), establishing a desired performance metric for at least one selected location within the space (specifying parameters for the base stations to match any desired indoor radio system and setting boundaries for the contour calculation) (page 2, second paragraph, page14, second paragraph, page 25-26, sections 5.2 –5.3 and page 43), modeling performance attributes of a plurality of different components which may be used in the communications network (modeling base

stations and interference points, each with a set of operating parameters, on the floor plan) (page 9, page 23, second paragraph and further shown in Figure 4.3), specifying components from the plurality of different components to be used in the communications network (adding base stations and interference sources on the floor plan) (page 9 and page 21, section 4.4), specifying locations within the space for a plurality of different components in the computerized model (positioning the base stations and interferences sources on the floor plan) (page 2, second paragraph, page 9 and page 21, section 4.4), predicting a predicted performance metric for the at least one selected location within the space based on the selected components and the selected locations (simulating the plan to predict coverage contours of the base station) (page 23 and Figure 4.3), and comparing the predicted performance metric to the desired performance metric (the simulation results show and display the boundaries of the contour coverage for respective base stations and interference sources, allowing comparison of the set contour coverage boundary parameters to the displayed simulation results boundaries) (page 9, last paragraph, pages 23-24 and pages 29-32).

Referring to claims 2 and 20, Skidmore et al. teach specifying components and locations automatically multiple times until a desired comparison is obtained in the comparing step (upon receiving user instructions to load a number of different floor plan drawings into SMT Plus, the SMT Plus system automatically changes the components and locations of components to correspond to the loaded floor plan drawing numerous times until users are satisfied with the simulation results; furthermore, upon receiving user instructions to add, delete and reposition base sources and interference sources, SMT Plus automatically adjusts the floor plan to

correspond to user specifications, until the users are satisfied with the predicted simulation results) (pages 9 and 20-22).

Referring to claims 3,13, 21 and 32, Skidmore et al. teach specifying a configuration for the selected components (selecting components such as base stations and interference sources to be placed and positioning the selected components at particular locations on the floor plan) (pages 9 and 26-29, section 5.3).

Referring to claims 4, 14, 22 and 33, Skidmore et al. teach specifying a configuration includes the step of defining an orientation of the selected component in the space at the selected location (once the user selects the location to place the base station and interference sources, these components are oriented on the chosen orientation according to user specification, i.e. the height of the station above the floor, or the environment and view point, i.e. floor height and zoomed in, zoomed out view of the floor plan) (page 10, pages 21-23,sections 4.3-4.4 and 26, section 5.3). This is further shown in Figures 5.4 and 5.5.

Referring to claims 5, 23 and 39, Skidmore et al. teach the steps of specifying components, specifying locations, and specifying a configuration are performed automatically multiple times until a desired comparison is obtained in the comparing step (upon receiving user instructions to load a number of different floor plan drawings into SMT Plus, the SMT Plus system automatically changes the components, locations of components and the parameter values of the components to correspond to the loaded floor plan drawing numerous times until users are satisfied with the simulation results; furthermore, upon receiving user instructions to add, delete and reposition base sources and interference sources, SMT Plus automatically adjusts the floor

plan to correspond to user specifications, until the users are satisfied with the predicted simulation results) (pages 9 and 20-22).

Referring to claims 6, 15, 24 and 34, Skidmore et al. teach at least some of the components specified are wireless communication components (such as base stations and interference sources) (page 9).

Referring to claims 7, 16, 25 and 35, Skidmore et al. teach at least some of the wireless communication components are antennas, transmitters, receivers and transceivers (the components include antennas, base stations, interference sources, etc.) (pages 9 and 18).

Referring to claims 8, 17, 26 and 36, Skidmore et al. teach the performance metrics are selected from the group consisting of received signal strength intensity, throughput, bandwidth, quality of service, bit error rate, packet error rate, frame error rate, dropped packet rate, packet latency, round trip time, propagation delay, transmission delay, processing delay, queuing delay, capacity, packet jitter, bandwidth delay product, handoff delay time, signal to interference ration, signal-to-noise ratio, physical equipment price, maintenance requirements, depreciation and installation cost (performance parameters includes bandwidth, received signal strength intensity, signal-to-interference ration, signal-to-noise ratio and numerous other operating parameters associated with the base station and interference sources) (page 14 and Figure 5.4).

Referring to claims 9, 18, 27and 37, Skidmore et al. teach the computer model of the space is three dimensional (the computer model contains a height parameter, such as the ceiling height and height above floor, which gives the model a third dimension) (page 10 and Figure 5.4).

Referring to claims 10, 28 and 40, Skidmore et al. teach the step of selecting locations is performed with a graphical interface (the user interface relies upon AutoCAD to provide an interactive operating environment) (page 9).

Referring to claims 11, 29 and 41, Skidmore et al. teach specifying a location attribute for the selected components (specifying parameters for the selected base station placed at the specified location, such as height above floor) (pages 26-29, section 5.3 and further shown in Figure 5.4).

Referring to claims 30 and 38, Skidmore et al. teach the network is a wireless communications network (planning wireless communications systems in indoor environments) (page 2, first paragraph).

Referring to claims 42 and 55, Skidmore et al. teach a site specific system and method comprising a display for displaying a site map of a site in which a communications network is or will be employed (displaying a site map to assist a user in planning for wireless communications systems in indoor environments) (page 2, first and second paragraph and further shown in Figure 4.2); a computer representation, rendered on the site map on the display, of a possible configuration of a communications network which includes a plurality of components which are or may be used in the communications network (computer displayed floor plan of a configuration of a communications network in a building which includes a plurality of components that can be used in the network such as base stations and interference sources) (page 2, first and second paragraph, pages 21-22 and further shown in Figure 4.2), one or more of the plurality of components having at least one of the performance data, cost data, maintenance data and equipment settings stored in a database (parameters for the base stations and interference sources

such as performance data, i.e. transmit power, and equipment settings, i.e. height above floor, can be stored as sets of data in SMT Plus) (pages 14-15, section 3.3 and Figure 5.4); device for establishing one or more parameters of a desirable configuration of the communications network (parameters for the base stations and interference sources placed on the floor plan can be configured) (page 9, pages 14-15, section 3.3, and Figure 5.4); device for changing at least one of one or more components within the configuration of the communications network and equipment settings of one or more components within the configuration of the communications network (base stations and interference sources on the floor plan can be added, deleted and repositioned, and settings, or parameters for these components can also be changed and configured) (page 9, pages 14-15, section 3.3, and Figure 5.4); device for determining predicted or measured parameters for the communications network within the site computer representation (simulating the plan to predict coverage contours of the base station) (page 23 and Figure 4.3); and device for determining one or more optimized or preferred configurations of the communications network based on a comparison of predicted or measured parameters generated by the device for determining and the one or more parameters of the desirable configuration established by the device for establishing (the simulation results show and display the boundaries of the contour coverage for respective base stations and interference sources, allowing comparison of the set contour coverage boundary parameters to the displayed simulation results boundaries, so the users can change the configuration and settings of the site map until they are satisfied) (page 9, last paragraph, pages 21- 24 and pages 29-32).

Referring to claims 43 and 56, Skidmore et al. teach determining measured parameters for the communications network (setting measured parameters such as bandwidth, transmit power and frequency of base stations and interference sources) (page 14, section 3.3).

Referring to claims 44 and 57, Skidmore et al. teach determining predicted parameters for the communications network (simulating the plan to predict coverage contours of the base station) (page 23 and Figure 4.3).

Referring to claims 45 and 58, Skidmore et al. teach one or more components of the plurality of components are selected from the group consisting of base stations, base station controllers, amplifiers, attenuators, antennas, coaxial cabling, fiber optic cabling, splitters, repeaters, transducers, converters, couplers, leaky feeder cables, hubs, switches, routers, firewalls, MIMO systems, sensors, power distribution lines, wiring, twisted pair cabling and wireless or other access points (selecting base stations and interference sources to be placed on the floor plan) (page 2, second paragraph and page 9).

Referring to claims 46 and 59, Skidmore et al. teach the one or more parameters of the desirable configuration include radio signal strength intensity, signal-to-interference ratio, signal-to-noise ratio and numerous other operating parameters associated with the base station and interference sources) (page 14 and Figure 5.4).

Referring to claims 47 and 60, Skidmore et al. teach automatically changing in an iterative process a type of component of the one or more components (SMT Plus can automatically change the type of components on the floor plan iteratively by continuously loading in a number of pre-existing parameter sets to be used within the floor plan) (pages 9, 14-15 and 27-30 and further shown in Figure 5.4).

Referring to claims 48 and 61, Skidmore et al. teach manually changing in an iterative process a type of component of the one or more components (the user can instruct the device to continuously add or delete a number of components to the floor plan) (page 9).

Referring to claims 49 and 62, Skidmore et al. teach automatically changing in an iterative process manufacturer of the one or more components (SMT Plus can automatically change the manufacturer by continuously loading in different sets of manufacturer's standard parameter values such as the "IS 95 default parameters", the "IEEE802.11 default parameters", etc.) (pages 9, 14-15 and 27-30 and further shown in Figure 5.4).

Referring to claims 50 and 63, Skidmore et al. teach manually changing in an iterative process manufacturer of the one or more components (the user can continuously configure the device by continuously instructing the device to use different manufacturer's default parameter sets) (pages 9 and 27-30 and further shown in Figure 5.4).

Referring to claims 51 and 64, Skidmore et al. teach automatically changing in an iterative process a location of a component of the one or more components (SMT Plus can automatically change location of a component by continuously loading in a number of parameter sets to be used within the floor plan, the parameter sets including a reference distance parameter) (pages 9, 14-15 and 27-30 and further shown in Figure 5.4).

Referring to claims 52 and 65, Skidmore et al. teach manually changing in an iterative process a location of a component of the one or more components (the user can continuously configure the floor plan by continuously repositioning the base stations and interference sources) (page 9).

Referring to claims 53 and 66, Skidmore et al. teach automatically changing in an iterative process one or more of transmit power, channel or frequency, bandwidth, data rate, antenna type, antenna sector or positioning, modulation or coding type, protocol, data rate, switching in a spare component, resetting or changing settings of a component of the one or more components (SMT Plus can continuously load in a number of parameter sets to automatically change parameters such as bandwidth, transmit power, etc.) (pages 9, 14-15 and 27-30 and further shown in Figure 5.4).

Referring to claims 54 and 67, Skidmore et al. teach manually changing in an iterative process one or more of transmit power, channel or frequency, bandwidth, data rate, antenna type, antenna sector or positioning, modulation or coding type, protocol, data rate, switching in a spare component, resetting or changing settings of a component of the one or more components (the user can continuously configure and change parameters such as bandwidth, transmit power, etc.) (pages 9, 14-15 and 27-30 and further shown in Figure 5.4).

Referring to claims 68 and 69, as understood by the examiner, Skidmore et al. teach a site specific system and method comprising a display for displaying a site map of a site in which a communications network is or will be employed (displaying a site map to assist a user in planning for wireless communications systems in indoor environments) (page 2, first and second paragraphs and further shown in Figure 4.2); identifier identifying locations on the site map where placement of one or more components of the communications network are not desirable or are desirable (for example, locations on any of the floors inside the building floor map of Figure 4.2 are desirable and locations outside of the building floor map area are not desirable SMT calculations are limited to an indoor environment) (page 10); device for establishing one or more

parameters of a desirable configuration of the communications network (parameters for the base stations and interference sources placed on the floor plan can be configured) (page 9, pages 14-15, section 3.3, and Figure 5.4); device for configuring a computer representation on the site map on the display a possible configuration of a communications network which includes a plurality of the one or more components which are or may be used in the communications network (the computer displays a floor plan of a configuration of a communications network in a building which includes a plurality of components that can be used in the network such as base stations and interference sources) (page 2, first and second paragraph, pages 21-22 and further shown in Figure 4.2), one or more of the components having at least one of performance data, cost data, maintenance data and equipment settings stored in a database, the device for configuring positioning on the site map computer representations of the one or more components only at locations which are desirable and not at locations which are not desirable (parameters such as performance data, i.e. transmit power, and equipment settings, i.e. height above floor, for the base stations and interference sources placed at desirable locations such as inside the building floor plan on the display, can be stored as sets of data in SMT Plus) (pages 14-15, section 3.3 and Figure 5.4), and device for determining one or more optimized or preferred configurations of the communications network based on a comparison of predicted or measured parameters for a configuration generated by the device for configuring with the one or more parameters of the desirable configuration established by the device for establishing (the simulation results show and display the boundaries of the contour coverage for respective base stations and interference sources, allowing comparison of the set contour coverage boundary parameters to the displayed

simulation results boundaries, so the users can change the configuration and settings of the site map until they are satisfied) (page 9, last paragraph, pages 21- 24 and pages 29-32).

7. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar methods of modeling and simulating the performance of a communications network.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ting Zhou whose telephone number is (703) 305-0328 through the month of October, 2004 and (571) 272-4058 thereafter. The examiner can normally be reached on Monday - Friday 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached at (703) 308-3116 through the month of October, 2004 and (571) 272-4048 thereafter. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-8720 through the month of October, 2004 and (571) 273-4058 thereafter.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

24 September 2004

CAO (KEVIN) NGUYEN
PRIMARY EXAMINER